The Massachusetts Executive Office of Energy & Environmental Affairs (EEA)
Global Warming Solutions Act (GWSA)
Implementation Subcommittees
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Clean Energy & Climate Plan for 2020: Summary Reports

April 22, 2013

Massachusetts Global Warming Solutions

Buildings, Energy Efficiency, and Demand-Side Management Subcommittee Highlights

Strategy Implementation - Progress Rating

Low:	Expand Energy Efficiency to Oil in Commercial and Industrial buildings (0.1 %)[1] Federal Appliance Standards (0.6%)
Medium:	Advanced building codes (1.6 %) Green Communities (cross-cutting) Leading by Example (cross-cutting) Tree Planting (0.1%)
High:	All Cost-Effective Energy Efficiency/ 3-Year Plans (7.1%) Building rating & labeling (supports other energy efficiency strategies) Solar thermal (0.1 %)

Key Findings & Recommendations

The 3-year plans for utility funded energy efficiency is by far the biggest element of the 2020 plan from the buildings sector. The new 2013-2015 plans have been ratified by the DPU, however, their current projected savings are less than anticipated in the 2020 plan. This is partly, explained by the drop in natural gas prices and the economic downturn – which help reduce the Massachusetts green house gas (GHG) footprint in other ways.

The second major source of savings is Advanced Building Codes – this is also not expected to meet the emissions targets in the plan for two reasons: a) the downturn in the construction market and b) the delay in rolling out new energy codes. It is expected that the 2012 IECC base building code will be adopted sometime in 2013 with implementation in the field beginning in 2014.

Other initiatives that support these main two strategies, such as deep energy retrofits, building rating and labeling are moving forward with minor delays. The Solar thermal market is developing well with incentives from the MassCEC Commonwealth Solar Thermal program and the research on the benefits of urban tree canopy is encouraging.

On the downside, we have moved Federal appliance standards into the 'Low' category, due to the recent surprise announcement that the Federal Furnace standards are not being implemented as planned this

[1] Reflects the percent reduction in GHG emissions (compared to 1990 levels) that is projected for each strategy in the *Clean Energy and Climate Plan for 2020*

May. The furnace standards are perhaps the most significant residential standard in our climate zone and will be delayed by between 4 to 7 years, depending on how quickly states and the US DOE act.

In light of the shortfall in GHG reductions from the two primary policies, the sub-committee has been soliciting input on additional, supplementary strategies for the buildings sector.

Discussion Topics

There were a number of potential supplementary strategies proposed and discussed within this sector:

1. Expanding participation in the Commercial Real Estate Sector:
    a. DOER and the PAs plan to convene a CRE working group to identify opportunities for greater integration and participation in the 3 year EE plans.
    b. Multi-family housing
    c. A number of smaller initiatives, including Leading by Example, Expanded tree planting.

Open questions for future meetings:

1. How close can we get to the GHG targets for all cost-effective energy efficiency in the 2013-15 Program Administrator (PA) energy efficiency plans, and in future planning out to 2020?
2. The PA energy efficiency plans provide potential funding and statewide scale, but require extensive evaluation for cost-effectiveness and add significant overhead costs. To what extent should 2020 strategies such as deep energy retrofits, rating and labeling, advanced codes and federal standards fall under the PA energy efficiency plans, versus being separately funded initiatives?

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Energy Generation and Distribution Subcommittee Highlights

Strategy Implementation - Progress Rating

Low:	Clean Energy Performance Standard (-)
Medium:	Offshore Wind; Clean Energy Imports (5.4%)[2]
High:	RPS/APS (1.2%) RGGI EPA Power Plant Rules (1.2%)

Key Findings & Recommendations

The Clean Energy and Climate Plan includes 6 strategies grouped in the Energy Generation and Distribution subcommittee, that together are estimated to contribute a reduction of 7.7% in greenhouse gas emissions by 2020. The retiring of two coal plants in the state is going forward as expected. The Renewable Energy Portfolio Standard (RPS) is also on track and the development of solar photovoltaic (PV) is increasing significantly with the Governor's goal in reach 4 years ahead of time. The largest contribution to emission reductions is expected from the import of large scale hydroelectric power from Canada. This is the most challenging part of this group of strategies. An analysis of the risks and opportunities of a Clean Energy Performance Standard is being prepared for summer 2013.

Discussion Topics

- Offshore wind energy holds great potential for Massachusetts. The biggest challenge of realizing this potential is financing the projects. Does the IAC have recommendations for new sources of financing of offshore wind?
- The IAC supported increasing the ambition level for developing renewable heating and cooling, and suggested approaching it as a broad strategy encompassing portfolio standards, building codes and efficiency programs. Additional input on how to move this forward is welcome.

[2] Reflects the percent reduction in GHG emissions (compared to 1990 levels) that is projected for each strategy in the *Clean Energy and Climate Plan for 2020*

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Transportation, Smart Growth and Land Use Subcommittee Highlights

Strategy Implementation - Progress Rating

Low: Clean Car Consumer Incentives (0.5%)[3]

Medium: Federal Renewable Fuel Standard & Regional Low Carbon Fuel Standard (1.6%)
Smart Growth Policy Package (Sustainable Development Principles) (0.5%)

High: Federal & California Vehicle Efficiency & Greenhouse Gas Standards (2.6%)
Federal Emissions & Fuel Efficiency Standards for Medium & Heavy Duty Vehicles (0.3%)
GreenDOT (1.2%)
Pay as You Drive (PAYD) Auto Insurance (pilot program) (1.1%)

Key Findings & Recommendations

- Policies reliant on Federal Standards & Massachusetts adoption of California standards are on track to produce expected GHG reductions.
- The Regional Low Carbon Fuel Standard (LCFS) is progressing, but more slowly than anticipated. The states are monitoring the outcome of CA lawsuit.
- The Pay as You Drive (PAYD) Pilot is under contract; expected GHG reductions from the Pilot may need refinement.
- MassDOT has issued the GreenDOT Implementation Plan which includes a mode split goal that would triple the person miles traveled on transit, by foot, and by bike; the next step is Division work plans based this Plan.
- The Patrick Administration has released both the proposal for the next generation of transportation investment in the Commonwealth: *The Way Forward: A 21st Century Transportation Plan* and the budget proposals to meet the needs identified in the Plan.
- Passage of the Governor's budget containing transportation funding is important to realization of GreenDOT & Smart Growth goals.
- A supplemental policy to provide incentive for clean/electric vehicles is under consideration as the Clean Car Consumer Incentives described in the Clean Energy & Climate Plan appear unfeasible.
- The Administration has announced a new Housing that Works Policy that seeks to produce 10,000 units of multi-family housing annually that are reasonably dense and reasonably located,

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consistent with GWSA GHG reduction goals. Progress on the "Smart Growth Policy Package" is mixed & implementation will be a focus for the first six months of 2013.

Discussion Topics

- Endorsement of supplemental clean/electric vehicle incentive policy to address Clean Car Incentives shortfall.
- Broader incorporation of forest conservation into GWSA implementation strategies
- Coordination of 1) smart growth policies being pursued by the Adaptation, Buildings, & Transportation Subcommittees and 2) land use policies being pursued for discreet purposes (such as Mode Split, Housing that Works & VMT and GHG reduction pursuant to the GWSA & CECP) as part of a Patrick-Murray Administration approach to land conservation & development.

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Non-Energy Emissions Subcommittee Highlights

Strategy Implementation - Progress Rating

High: Reducing Sulfur Hexafluoride (SF_6) Emissions from Gas-Insulated Switchgear (0.2%)[4]
Reducing Emissions from Plastics Combustion (0.3%)
Stationary Equipment Refrigerant Management (1.3%)

Key Findings & Recommendations

The Clean Energy and Climate Plan includes 4 strategies grouped in the Non-Energy Emissions subcommittee that together are estimated to contribute 2.0% of greenhouse gas emission reductions by 2020. Because motor vehicle air conditioning emission reductions are addressed in MassDEP's Low Emission Vehicle regulations, that strategy is reported on in the Transportation subcommittee. SF_6 emission reduction is going forward through a MassDEP regulation expected to go to public comment in spring 2013. Plastics Combustion reduction is occurring through a suite of activities under MassDEP's Solid Waste Advisory Committee, and is on track. Refrigerant Management is being explored through meetings with technically-knowledgeable or potentially-affected stakeholders, intended to lead to proposed regulations in the second half of 2013.

Two supplemental strategies have been proposed. The first seeks to reduce emissions from the natural gas distribution network, essentially reducing natural gas leaks. The second strategy would reduce fluorinated gas emissions from the semiconductor industry, similar to the strategy addressing the gas-insulated switchgear.

Discussion Topics

- Are there recommendations for how the subcommittee should proceed with addressing natural gas distribution leaks?
- Could computer chip SF_6 reductions be a potential supplemental strategy (MassDEP)?
- Does the IAC have further recommendations for supplemental strategies?

[4] Reflects the percent reduction in GHG emissions (compared to 1990 levels) that is projected for each strategy in the *Clean Energy and Climate Plan for 2020*

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Climate Change Adaptation Subcommittee Highlights

Strategy Implementation - Progress Rating

Low: Development of clear quantitative goals.

High: Work Plan creation.
Organizational structure proposal

Key Findings & Recommendations

The first Massachusetts Climate Change Adaptation Report, released in 2011, outlines over 200 potential strategies in sectors such as Natural Resources/Habitat, Public Health, Infrastructure (energy, water, wastewater, solid waste, transportation), Economy (manufacturing, services, agriculture, forestry, fisheries, healthcare, education), Local Government, and Coastal Zone and Ocean. Over the last several years, state agencies have been involved in climate change adaptation activities such as evaluating existing capabilities, resources, and programs; securing funding for surveys, outreach, and inventory assessments; and assessing vulnerabilities of their resources.

Members of the Adaptation subcommittee have been reviewing actions taken and lessons learned from other states in dealing with extreme weather conditions and other climate adaptation topics. Recently, both New York and Maryland Governors issued executive orders that addressed adaptation. In Maryland, Governor Martin O'Malley directed government agencies to consider sea level rise, flooding, and other extreme weather events related to climate change in the construction and renovation of state buildings and state funded projects. In New York, Governor Andrew Cuomo created three commissions tasked with making recommendations on how to improve the State's emergency preparedness and response capabilities as well as how to improve the strength and resilience of state infrastructure, and announced several new initiatives/programs during his 'state of the State' address in January of this year.

At its most recent meeting, the Adaptation subcommittee prioritized strategies outlined in the Adaptation Report through the lens of emergency preparedness and protection of key infrastructure and human life. The following are those that were received the most number of votes. The Subcommittee, through its Work Plan and activities, will begin to address these areas that have multi-sectoral and -agency relevance:

- Collect elevation data (LiDAR) for all of Massachusetts and combine with NOAA sea level projections and MassDOT-USGS flood frequency equations to identify areas of risk.
- Assess other risks from climate change on utilities, transportation infrastructure, critical facilities, and vital urban centers.
- Retrofit, remove, or relocate transportation, water and wastewater, and energy infrastructure to address more frequent flooding, storm events, greater/erratic capacity.

- Promote the use of green infrastructure.
- Provide assistance to local communities for adoption of best practices and responsive planning.
- Enhance emergency preparedness.

In order to move forward with Adaptation plans and projects, and following the IAC Co-chairs' direction, the Adaptation Subcommittee outlined three potential alternatives for a process and organizational structure to most effectively address climate change adaptation in Massachusetts. The preferred structure is an Adaptation Implementation Advisory Committee (IAC) structured in a similar way to the current mitigation-focused IAC . Other recommended structures include creation of topic-specific adaptation working groups within the existing subcommittee or the creation of additional adaptation subcommittees within the current IAC. There was direction from both the Implementation Advisory Committee and the Adaptation Subcommittee that adaptation should be treated as equivalent to mitigation in terms of its priority and addressed through its own advisory committee. Although the recommendation was for a separate Adaptation IAC, it was agreed that both mitigation and adaptation committees should coordinate and communicate regularly. Moving forward, a new organizational structure is needed for adaptation in addition to quantitative, as well as qualitative, implementation goals.

Discussion Topics

- Next steps on Adaptation process and organizational structure.
- How best to organize subcommittee/working groups (e.g. organize by type of impact; specific task, project, tool; and/or sector).
- Collaboration with Northeast Climate Science Center at UMass Amherst on adaptation-related research projects.